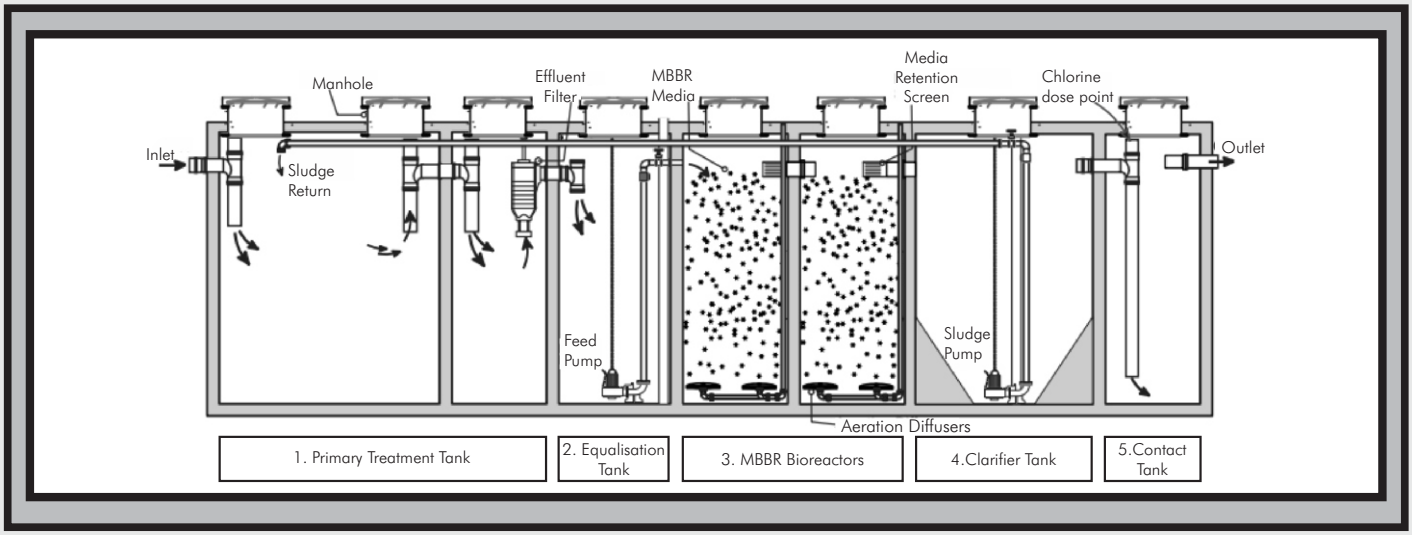
bioliff
WATER • TECH

ENPURA
Waste Water Treatment Plants



The **ENPURA** treatment system is an advanced Moving Bed Biofilm Reactor (MBBR) wastewater purification technology designed to deliver effective treatment for domestic, commercial and industrial applications. Enpura MBBR plants are a highly effective attached growth biological treatment system designed to treat a variety of pollutants from wastewater sources. COD, BOD, TSS, Nitrogen and Phosphorus are effectively removed by MBBR biofilm carriers. The Enpura MBBR system is engineered to provide the most energy efficient, most compact and maintenance free solution available. It utilizes SSI advanced aeration technology with optimized biofilm carrier engineered to provide truly superior performance. The treatment process is as follows:-

1. Primary Treatment: Solids are separated and settled and organic sludge is then broken down through anaerobic digestion. After primary separation/settlement, the liquid effluent is passed through an effluent filter to the Equalisation tank.

2. Equalisation Tank: Holds peak flows and regulates the amount of effluent that is fed into the bioreactor tanks. Maximum efficiency is achieved when the effluent stream is fed to the Bioreactors at a constant rate over 24hrs.

3. MBBR Bioreactors: Effluent enters the Bioreactor chambers where bacteria attached to the specialised MBBR carrier media breaks down the waste using oxygen provided by an air blower. Aeration blowers force air into the tank and through fine bubble diffusers positioned under the media in order to provide oxygen to the bacterial population as well as mixing the tank.

4. Clarifier Tank: The effluent then passes to the clarifier tank where sludge and suspended solids are separated from the water and settle at the bottom. The clear water is carried to the contact storage tank and the sludge is returned to the primary treatment for storage and digestion.

5. Contact Storage Tank: The treated water from the clarifier is dosed with chlorine for disinfection. The final product, a clear, odorless and sanitized effluent is ready for discharge either for irrigation or safely to the environment.
Typical Enpura installations are below ground using a concrete structure, but above ground and mobile configurations are available. Alternative tank configurations for plastic, fiberglass & steel tanks are available on request.

Retrofitting the Enpura technology to old wastewater facilities, septic/conservancy tanks and failed plants is also a popular solution. Features include:-

- Suited to operate in fluctuating loading, power cuts, storm water flooding, toxic shock and intermittent operation conditions.
- Energy Efficient
- Volumetrically Optimised - compact, space saving, reduced infrastructure cost
- Low sludge yield - as low as 0.3kg TSS/ kg BOD
- Low energy consumption.
- Modular design allowing for scaling up when higher capacity is required.
- The design and layout is flexible and can be suited to customer requirements.

Enpura Purification results:
BOD: <30mg/l **COD:** <50mg/l* **TSS:** <30mg/l

*COD results are dependent on fraction of non-biodegradable soluble COD in wastewater. If fraction is too high then further chemo-physio process may be required.

EQUIPMENT SPECIFICATION

Model*	100PE	200PE	300PE	400PE	500PE	700PE	800PE	1000PE
Population Equivalent (PE)	100	200	300	400	500	700	800	1000
Flow, m^3/day	15	30	45	60	75	105	120	150
Organic Loading (Kg/BOD5/day)	6	9	12	24	30	42	48	60
Nitrogen Loading (Kg/NH/day)	0.8	1.6	2.4	3.2	4.0	5.6	64	8
Length (m)	9.0	12.0	15.0	16.0	16	14	14	16
Width (m)	2.0	2.5	3.0	3.3	3.0	2.7	3.2	3.3
Depth (m)	1.8	2.0	2.0	2.5	3.3	3	3	3
Foot Print (m^2)	18	30	35	53	48	38	44.8	53
Total Tank Volume m^3	32	60	90	132	158	113	134	158
Installed Power kW**	1.2	1.55	1.85	1.85	1.85	2.4	3.7	5.2

* Required system capacities not listed here can be provide on request.
**Power saving efficiency can be achieved using VFD aeration motors and DO sensors to keep aeration energy to the exact requirement.